to disappear in dietetic albuminuria. It is, I think, important that the patient should not make much exertion in the early part of the day. In one of Clement Dukes' very instructive papers on "The Albuminuria of Adolescents"[1]—a form which I have already cited as belonging, I think, in the main, to the group I am here describing—he mentions as a significant sign that boys affected with it fainted when obliged to stand during morning prayers in chapel. Young people who have the complaint ought not to be pushed in their studies. It is in them an expression of a disturbed development of the growing organism; an expression of weakness of nerve force, and of poor assimilation during growth.

Among medicines, laxatives are very important—phosphate of sodium, cream of tartar, Rochelle salt. An occasional blue pill, or a grain or two of calomel preceding the saline, is also to be recommended. So is a course of muriate of ammonia, or of iron, from time to time—iron, in the shape preferably of the tartrate of iron and potassium, or of Basham's mixture. In the cases with oxalates, nitro-muriatic acid remains a standard remedy, and Haig,[2] in his recent very interesting work, strongly urges acid as clearing the blood of uric acid. We must not in any case overlook the heart. The heavy work thrown on the kidneys, the general ill-nutrition which comes from the poorly oxidized elements circulating in the blood, and the lowered nerve force, disturb the heart, and the irregularity it exhibits may have to be met by digitalis or strychnine. The inhalation of oxygen has suggested itself, but I have not as yet used it sufficiently to be sure of its distinct therapeutic value.

The treatment has been described in this paper at some length, because we have it in our power to make this treatment effective, and, by applying it to a form of albuminuria that can be clearly recognized, to rescue cases which otherwise might really swell the list of Bright's disease, with the dreaded name of which they are commonly labelled.

TENOTOMY BY THE OLD METHOD.

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JUDGED by the simplest surgical principles, it would appear that the division of a shortened tendon or of a contracted band of fascia could best be accomplished by exposing it through an incision in the skin, by isolating it, and then by cutting it with the least possible injury to the adjacent parts. Such a method was carried out—with some uncouthness, probably—in the early days of tenotomy.

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[1] London Lancet, December, 1891.

[2] Uric Acid as a Factor in the Causation of Disease, 1892.

The first operation of tendon division is ascribed to Roonhuysen, of Amsterdam,[1] who severed the sterno-mastoid tendon in 1670. A flap of skin was raised, and the contracted band was then cut "from without inward," as the phraseology goes. One hundred years went by, and surgeons were still found to be following the same method. Ten Haaf[2] operated after this fashion upon the sterno-mastoid tendon toward the close of the eighteenth century, and Sharp[3] is found to be departing but little from the ancient plan when, after exposing the tendon, he passed the knife beneath it and divided it by cutting toward the surface.

The records of the time, however, show that there was some surgical uneasiness about this apparently simple operation. It was seldom performed by the bold, and it was feebly modified by the timid. A certain surgeon, one Minnius,[4] destroyed the skin over the tendon with caustic, and then divided it with scissors. Surgical procedures in this direction do not appear to have descended lower than this. Other operators, with what appears to have been a reckless querulousness, divided the skin and the tendon in one feverish gash, and then apparently waited to know the worst.

The reason of all this was that an open wound was a terror to the conscientious surgeon. Healing by first intention was rare; suppuration was the rule. The dressings applied were to the bacteria of the time what a tropical climate is to vegetation. The fussy attention which gave the wound no prospect of being left alone, and which encouraged the pouring into it of oil and wine, took away the few remaining prospects of success. Surgeons have never been famous for the publication of their failures; but one can imagine the suppuration that took place in the tendon sheaths, the abscesses that ran riot in the connective tissue, the joints that were disorganized, and the limbs that were lost in those picturesque times, when the surgeon wore knee-breeches and a furred cloak, and when aseptic surgery was yet without form and void.

Such was tenotomy by the open method. In course of time it was demonstrated that tendons could be divided without making a large surface incision, and that by means of a small skin puncture and a subcutaneous section of the contracted band, the evils attending the older plan were for the most part avoided.

Delpech[5] laid down the principles of subcutaneous tenotomy as it is practised at the present day, but it is remarkable that he himself did not observe the precautions of which he preached, for in dividing the Achilles tendon he made a cut on each side of the tendon one inch in length.

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[1] Historische Heilcuren. Nürnberg, 1674.

[2] Abhandlungen aus der Naturgeschichte. Leipzig, 1775, vol. i. p. 262.

[3] Treatise on the Operations of Surgery. London, 1740.

[4] Tulpii, Observationes Medic.

[5] Chirurgie Clinique de Montpellier, 1823, t. i. p. 184.

Ashley Cooper[1] employed the subcutaneous method for dealing with contracted fasciæ in the hand, and within a few years, influenced by the practice of Stomeyer and others, subcutaneous tenotomy came to be generally employed.

Now it cannot be ignored that that necessity which led to the invention of the subcutaneous operation no longer exists, and that the circumstances which made the older procedure rash and dangerous have entirely passed away.

It remains to consider whether this excessive caution in dividing a shortened tendon is still admirable, even although it has ceased to be necessary, and whether the operation has special merits which are independent of the conditions which brought it into being.

Should the time ever come when all surgical secrets are unfolded, I think it would be found that the tenotome has many sins to answer for. There would be recorded against it many disastrous cuts in the dark, many cases in which the wrong tendon had been severed and the right one saved, not a few instances of the division of unseen veins, of the outpouring of blood into tendon sheaths, of the pricking of arteries and the cutting of nerves.

It is a good rule in surgery that the surgeon's blade should reach no farther than his eye can follow it, that every cut should be made with the utmost precision, and that the scalpel should be free from all speculative movements.

In some cases of tenotomy—as, for example, in dealing with the Achilles tendon—the blade, although hidden from view, can be directed with the greatest exactness; but in other instances the thrust of the knife is a thrust made at a venture, and the procedure lacks that definiteness which should never be wanting in any surgical operation.

In judging between the subcutaneous and the open methods in tenotomy, and in appraising their comparative value, a decision can be made to depend upon the interpretation of two surgical axioms.

The first of these is to the effect that the operation incision should never be larger that the efficient performance of the operation requires, and the second insists that the division, and, if need be, the subsequent separation of the integuments, should be sufficiently free to enable the parts concerned to be well exposed, and to be dealt with with exactness. Here, then, are two extremes. On the one hand, there may be surgeons who will boast that they can ligature the common carotid, or extract the ovaries, through an inch incision. Such feats are possible, but they belong rather to legerdemain than to operative surgery; they are curious, but at the same time are both foolish and foolhardy. On the other hand, the worshipper of the free incision will maintain that the size of the skin-wound is of no moment at the present day, and that a free and ready exposure of the operation district is worth any sacrifice. A surgeon so minded may ligature the carotid by a process comparable to that by which the vessel is exposed in the dissecting room, and his abdominal incision may be founded upon the liberal lines observed in the making of post-mortem examinations.

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[1] On Dislocations and Fractures; sixth edition, 1829, p. 476.

So far as the present subject is concerned the true course lies between these two extremes.

If a tendon can be easily and certainly divided through a small skin puncture, then there can be no reason for employing a larger incision.

In dividing the tendo Achillis I still employ the subcutaneous method, not because a subcutaneous incision is safer, but because the tendon can be quite as well severed through a small incision as through a large.

On the other hand, if the position of the tendon or band be such that its subcutaneous division is attended with the very least uncertainty, then I freely expose it by turning back a suitable flap of skin. By such a procedure the tendon is brought well into view, its sheath can be precisely opened, and its substance precisely divided.

In dealing with a severe case of wry-neck, it appears to me that the subcutaneous method is entirely out of place, and I have observed the plan of exposing the part through a flap, and of then cutting such contracted tissues as need division (and they are not represented solely by the sterno-mastoid tendon) without the least element of speculation or uncertainty.

For some years past I have returned to the older method of tenotomy in the majority of the cases requiring that operation in its widest sense, and have employed the improved or subcutaneous incision in but a comparatively few cases.

The following case will perhaps serve to illustrate some of the remarks just made, and to afford an example of the value of the open method:

A young woman, aged twenty-one years, was admitted into my wards at the London Hospital, on March 10, 1892, with a contraction of the right knee. She was delicate and a member of a tubercular family. The knee had been the seat of tubercular disease which commenced four years ago. The joint was at first swollen, and splints were applied and kept in position for a period of seven months. When these were removed the articulation remained stiff and the patient was unable to use the limb. Fifteen months from the commencement of the disease an abscess appeared in the upper and outer part of the popliteal space. It continued to discharge for a period of six months. The limb became gradually bent. Two years ago a tubercular ulcer formed over the right malleolus. This gradually extended, and on admission had a diameter of two inches. The patient had not used the limb for about three years. On admission the knee was found to be free from active disease. It was tender and was fixed in the posture of semi-flexion. A sufficient degree of movement was apparent to make it evident that the ankylosis was not osseous. This movement was very insignificant. The young woman was unable to put the foot to the ground. The ulcer was scraped and grafted, and healed readily. The limb was suspended by two bands, one around the ankle and one above the knee, and a slight weight was applied over the joint. No improvement in position followed. A posterior splint was then applied and further attempts made to straighten the limb. An ulcer formed behind the ankle, due to the pressure of the splint, but the deformity remained unchanged. These attempts to correct the false position by mechanical means were maintained from March 10th until May 20th. On May 27th I carried out tenotomy by the open method. The skin of the ham presented scars of the old abscess, and the precise anatomy of the contracted tissues beneath it was very obscure. A rectangular flap of skin which took in the whole of the covering of the popliteal space was fashioned and turned up. The district beneath was well exposed and the various contracted tissues were severed as they were encountered. The semi-membranosus and semi tendinosus tendons were cut, as was also the ilio-tibial band of the fascia lata.

A considerable quantity of cicatricial tissue occupied the popliteal space, and this was cautiously divided to some depth. It appeared to offer the greatest resistance to the straightening of the limb. The biceps tendon was not severed. The knee was brought to the position of full extension without the employment of any force.

The flap was secured in place by sutures and covered by a dry dressing. An anterior metal splint was applied by means of which the limb was suspended.

The wound healed perfectly by first intention and without rise of temperature. On June 2 a simple back splint took the place of the anterior splint, and a little later the limb was put up in plaster and the patient encouraged to once more attempt to walk.

She left the hospital on July 9. She was then able to walk without limping and without a stick or any assistance. The limb was perfectly straight, and a little movement, which was increasing, was observed in the joint.

During the operation it became evident that no series of subcutaneous incisions could have divided all the complex contracted bands, and that such incisions would not have been unattended with risk. By the subcutaneous method the biceps tendon would have been severed without doubt, and after the three great tendons had been divided the limb would possibly have been put straight by force.

The contracted tissues, deep in the ham, would have been roughly torn through by such a measure, and subcutaneous bleeding and recontraction would have very probably resulted. In the operation described no force was employed, and the deformity was corrected by a series of simple incised wounds.

I think it will be allowed that in such a case as this the old method was the safer and surer and the more completely in accord with the first principles of operative surgery.

TUBERCULOUS PERICARDITIS.

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Tuberculosis follows hard upon rheumatic fever as a cause of pericarditis. The affection is usually overlooked clinically, and possibly in some cases anatomically. In 1000 autopsies, the majority of which were made at the Montreal General Hospital, there were 275 cases with tuberculous lesions, in 7 of which the pericardium was involved. Its relative frequency may be gathered from the following figures, furnished by Dr. Welch's records at the Pathological Laboratory of the Johns Hopkins Hospital. Of instances of pericarditis, 6 were tuberculous. Of late years attention has been called to the frequency of its occurrence, and yet the records in the literature are not very numerous; thus, the *Index-Catalogue* contains only thirty references, and the *Index Medicus* to July, 1892, only twenty-seven. The *Transactions* of the Pathological Society of London include but five cases to date.

The following is a brief summary of the cases which have come under my observation in Montreal, Philadelphia, and Baltimore:

Case I.—Female, aged forty-three years; sixteen ounces of dark exudate in pericardium; general miliary tuberculosis.

Case II.—Male, aged five years; caseous masses and fresh villous exudate; miliary tubercles on the peritoneum and in lungs; bronchial and mediastinal glands caseous.

Case III.—Female, aged thirty-eight years; chronic pulmonary tuberculosis; fresh tuberculous pericarditis.

Case IV.—Male, aged sixty-four years; acute tuberculous pericarditis; acute tuberculous pleurisy; chronic pulmonary tuberculosis.

Case V.—Male, aged fifty years; chronic pulmonary tuberculosis; recent tuberculous pericarditis.

Case VI.—Male, aged forty-five years; chronic pulmonary tuberculosis; chronic tuberculous pericarditis.

Case VII.—Male, aged twenty-eight years; chronic pulmonary tuberculosis; tuberculosis of pleura; acute tuberculous pericarditis.

Case VIII.—Mary B., aged thirty-six years; tuberculous pyelitis; fibro-caseous changes at the apices; sixteen ounces of turbid hemorrhagic serum in pericardium; thickening of the layers.

Case IX.—John G., aged fifty years; tuberculous mediastinal